



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/511,382	10/14/2004	Matti Hamalainen	6009-4722	2104
27123 7590 07/11/2007 MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER YANG, JIE	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 07/11/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/511,382

Applicant(s)

HAMALAINEN ET AL.

Examiner

Jie Yang

Art Unit

1709

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f):
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413).          |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/14/2004</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Acknowledge of the receipt of "applicant argument/remarks" filed on 10/14/2004.  
Claims 1-11 have been amended from original claims, and claims 1-11 are pending in application.

#### ***Specification***

Claims 4,5 are objected to because of the following informalities:

Regard to claims 4 and 5, The unit for "...g/I..." should be "...g/L...". Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regard to claim 1, test conditions are recited as: "...in the atmospheric...in atmospheric conditions...", however, the real test temperature is high than room temperature (refer to examples 1 and 2). Especially, applicants claim in claim 6: "...the temperature is kept in the range between 80°C and the boiling point of the suspension."; while the pressure in the reactors is not cited. In view of applicants' embodiment, examiner has assumed that the claim limitation means the ambient conditions during atmospheric pressure reaction and does not limit the temperature.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2,4-5, 7, 9-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Everett (U.S. 5,487,819, hereinafter '819).

Regarding claim 1, generally two steps are claimed in instant claim relates "a method for recovery of gold from a leaching residue or intermediate product containing iron and sulphur, which is generated in the atmospheric chloride leaching of a copper sulphide raw material," a, "...leaching the gold is from the residue product in an aqueous solution of Cu(II) chloride sodium chloride in atmospheric conditions with the aid of the bivalent copper contained in said solution and oxygen-containing gas."; b, "keeping the oxidation-reduction potential of the suspension formed at a value below 650 mV and the pH at a value of 1-3, whereby the iron and sulphur remain mainly undissolved; the dissolved gold is recovered and discarding the undissolved residue as waste".

'819 relates to "...the production of metals from minerals, and more particularly to the production of base and precious metal from ores and concentrates, including the production of copper." (Col.1, Line 9-20); "The mineral can typically include sulfur-containing ores, such as pyrite..." (Col.2, Line 7-14); "...the process operating at generally ambient pressure." (Col.6, Line 28-236); and "It is most typical that the electrolyte has a

Art Unit: 1709

high chloride content and has ionic copper dissolved therein."  
(Col.8, Line 11-21).

Regard to step a, '819 teaches: "In the copper electrolytic cell, cupric copper ( $\text{Cu}^{++}$  = bivalent Cu = cupric Cu --note by examiner) may also be produced at anode from any cuprous copper in the anode compartment. The cupric copper is recirculated back to the hcl zone to further assist in leaching of mineral therein. The gold leached in hcl zone 17 is recovered in a gold recovery unit 50 by transferring a portion 14P to the gold recovery unit." (Col.10, Line 26-33, because '819 shows a recirculated process, leaching the gold is from the residue product in an aqueous solution -- noted by examiner and refer to Fig.1). '819 also teaches: "air or oxygen is fed to the aeration zone, typically through one or more impellers...to assist in leaching of the mineral." (Col.6, Line 24-27). "...The electrolyte is typically a high concentration sodium chloride electrolyte..." (col.6, Line 7-13 and claim 44 of '819). Step a, is anticipated by '819.

Regard to step b, '819 teaches: "...The spend catholyte has a low oxidation potential, and when contacting the electrolyte reduces the Eh of the solution to below +600mV (Ag/AgCl) causing the gold to come out of solution as elemental gold..." (Col.10, Line 40-61); '819 also points out: "...the pH is preferably between 0.5 to 3,... The pH of the electrolyte is generally maintained below 3.5..." (Col.6, Line 28-36 and claim 45 of '819). As shown in example 4 of '819 (Col.16, Line 5-41), compared Au and Fe in leach residue-stage 3 and 4, Au was from 15.5ppm (stage 3) to 0.45ppm (stage 4); while Fe was from 28.4GPL (stage 3) to 23.0GPL (stage 4). (This means iron is mainly remain undissolved--note by examiner). "The overall copper leaching is 99%

Art Unit: 1709

with 98% of the gold leached in the hcl zone." (Col.16, Col.25 to 41). Regard to "sulfur", '819 teaches: "Once the mineral has been substantially leached, the process is conducted such that any sulfide sulfur in the incoming mineral is precipitated predominantly as elemental sulfur, (see equation (1), (5), and (6) below)..." (Col.6, Line 53-62). Regard to "discarding the undissolved residue as waste", '819 teaches: "Tailings from the filtration are taken off at 77 as are sludge 23 tailings 78..." (Col.11, Line 55-64 and refer to Fig.2). Step b, is anticipated by '819.

Concluding the above discussions, claim 1 is anticipated by '819.

Regard to claim 2, which depended on claim 1. As discussed in rejection for claim 1, step b, '819 teaches: "...The spend catholyte has a low oxidation potential, and when contacting the electrolyte reduces the Eh of the solution to below +600mV (Ag/AgCl) causing the gold to come out of solution as elemental gold..." (Col.10, Line 40-61 and claim 6 of '819); The range of oxidation reduction potential in '819 anticipate the range that recited in instant claims. Claim 2 is anticipated by '819.

Regard to claim 4, which depended on claim 1. '819 shows 51.2 to 62 G.P.L  $\text{Cu}^{++}$  (gram per liter) in leaching solution (col.16, Line 25-39). This  $\text{Cu}^{++}$  range is in the range with that recited in instant claim. Claim 4 is anticipated by '819.

Regard to claim 5, which depended on claim 1. '819 teaches: "...The electrolyte is typically a high concentration sodium chloride electrolyte of 250-300 grams per liter (gpl) of sodium chloride." (col.6, Line 7-13 and claim 44 of '819). This NaCl range is in the range with that recited in instant claim. Claim 5 is anticipated by '819.

Art Unit: 1709

Regard to claims 7, and 9, which depended on claim 1. As discussed in rejection for claim 1, step a, '819 teaches: "air or oxygen is fed to the aeration zone, typically through one or more impellers...to assist in leaching of the mineral." (Col.6, Line 24-27). The limitations in instant claims have been overlapped by above statement. Claims 7, and 9 are rendered obvious by '819.

Regard to claims 10-11, which depended on claim 1. '819 teaches: "...to cause the gold to come out of solution and absorb on the activated carbon. Separating the carbon with gold absorbed thereon from the electrolyte portion as a carbon/gold product; returning the gold depleted electrolyte portion to the hop zone; and recovering gold from the carbon/gold product" (Col.10, line 40-52 and claim 6 of '819 also refer to example 4). The limitations in instant claims have been anticipated by above statement. Claims 10-11 are anticipated by '819.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 6, 8 are rejected under 35 U.S.C. 103(a) as being obvious over '819.

Regard to claim 3, which depended on claim 1. As discussed in rejection for claim 1, step b, '819 teaches: "...the pH is preferably between 0.5 to 3,... The pH of the electrolyte is generally maintained below 3.5..." (Col.6, Line 28-36 and claim 45

Art Unit: 1709

of '819). But '819 does not explicitly teach pH of 1.5-2.5. However, range of pH 0.5-3 has been held overlapping ranges supports prima facie obviousness (Refer to MPEP 2144.05-I about overlap of ranges). Therefore, it would have been obvious to one of ordinary skill in the art to have chosen pH 1.5-2.5 from the disclosed range of 0.5-3 with reasonable expectation of success in the process of '819. Refer to the rejection for claim 1, claim 3 is rendered obvious by above references.

Regard to claim 6, which depended on claim 1. '819 teaches: "The temperature of the electrolyte is greater than 60°C and preferably ranges from 70 °C up to the boiling point of the electrolyte at ambient pressure" (Claim 47 of '819). This temperature range overlaps that recited in instant claim. Claim 6 is rendered obvious by '819.

Regard to claim 8, which depended on claim 1. As discussed in rejection for claim 1, step a, '819 teaches: "air or oxygen is fed to the aeration zone, typically through one or more impellers...to assist in leaching of the mineral." (Col.6, Line 24-27). It does not explicitly teach oxygen-enriched air. However, Refer to 2144.06 (Art recognized equivalents known for the same purpose). It is prima facie obvious to combine air and oxygen to form oxygen-enriched air to be useful for the same purpose as air or oxygen. Claim 8 is rendered obvious by '819.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure US 6,929,677, which indicated the similar method where sulfidic iron bearing copper concentrate is leached on the countercurrent principle, in a chloride environment.



Art Unit: 1709

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jie Yang whose telephone number is 571-270-1884.

The examiner can normally be reached on M-F, 7:30-5:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on 571-272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JY



  
MICHAEL B. CLEVELAND  
SUPERVISORY PATENT EXAMINER